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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,913	05/01/2006	Eiji Hayashi	Q94726	6881
23373 7590 09/09/2008 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				
EXAMINER				
FIELDS, DOROND				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/577,913

**Applicant(s)**

HAYASHI ET AL.

**Examiner**

DORON D. FIELDS

**Art Unit**

3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 July 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.  
4a) Of the above claim(s) 5, 6, 8 and 9 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-4 and 7 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 16 July 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-8508)  
Paper No(s)/Mail Date 09 June 2008  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

***Detailed Action***

***Status of Claims***

1. This final action is in reply to the amendment and arguments/remarks filed on 16 July 2008.
2. Claims 5-6 and 8-9 have been withdrawn from consideration.
3. Claims 1-4 and 7 are currently pending and have been examined.

***Information Disclosure Statement***

4. The Information Disclosure Statements filed on 09 June 2008 has been considered. An initialed copy of the Form 1449 is enclosed herewith.

***Response to Amendments***

5. Amendments to figures 29-33 is appreciated and entered as filed and objection withdrawn.
6. Amendment to the Abstract to remove the repeated information is appreciated and entered as filed and objection withdrawn.

***Response to Arguments***

7. Applicant's arguments with respect to claims 1-4 and 7 have been considered but are moot in view of the new ground(s) or rejection.

***Claim Objections***

8. Claim 3 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Dependent claim 3 repeats the limitation included in independent claim 1 from which it depends.

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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10. Claims 1-4 rejected under 35 U.S.C. 102(b) as being anticipated by Matsumoto et al. (US-PAT-NO: US-6,092,434 A).

**Claim 1:**

Matsumoto, as shown, discloses the following limitations:

*A ball screw device comprising:*

- *a screw shaft comprising a spiral first screw groove on an outer periphery thereof (see at least Figures 4 and 8, screw shaft 1 and ball screw groove 1a);*
- *a nut screw-engaged with the screw shaft (see at least Figure 4, nut 2), comprising:*
  - *a spiral second screw groove formed on an inner periphery thereof corresponding to the first screw groove (see at least Figure 8, ball screw groove 2a); and*
  - *a pair of circulating holes on side surface thereof (see at least Figure 5, tube fitting holes 9);*
- *a plurality of rolling elements rollably mounted in a load region formed between the first and second screw grooves (see at least Figure 8, balls 3);*
- *a circulating member (see at least Figure 8, ball-circulating tube 4) made of resin, comprising:*
  - *a rolling-element circulating path formed therein (see at least Figure 8), which introduces the rolling element rolling in the load region from one of the pair of circulating holes to an outside of the nut, and also returns the rolling element to the load region via other of the pair of circulating holes; and*
  - *both ends fitted to the pair of circulating holes (see at least Figure 8 and column 6, lines 25-30: "Fitted into the pair of tube-fitting holes 9 are both ends of a ball-circulating tube 4 having a substantially U-shaped configuration and a circular cross section and adapted to circulatingly guide the multiplicity of balls 3 rotatably fitted between the two ball screw grooves 1a and 2a."); and*
- *a metallic holding member for fixing the circulating member onto the nut (see at least Figures 8 and 20, circulating-part holding member 7).*

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- *wherein the circulation member is substantially U-shaped tube having bending portions on both ends thereof* (see at least Figure 8, ball-circulating tube 4, and column 6, lines 25-30: "Fitted into the pair of tube-fitting holes 9 are both ends of a ball-circulating tube 4 having a substantially U-shaped configuration and a circular cross section and adapted to circulatingly guide the multiplicity of balls 3 rotatably fitted between the two ball screw grooves 1a and 2a.");
- *wherein the holding member is manufactured by drawing processing* (the claimed invention is defined by its structure, as such, the process of making the holding member is not given patentable weight. See MPEP § 2113.); *and*
- *wherein the holding member substantially covers a main body of the circulation member including the bending portions thereof* (see at least Figures 8 and 20, circulating-part holding member 7).

**Claim 2:**

Matsumoto discloses all the limitations of claim 1 as shown above. Furthermore, Matsumoto, as shown, discloses the following limitations:

- *wherein the holding member is manufactured by sheet metal press processing* (the claimed invention is defined by its structure, as such, the process of making the holding member is not given patentable weight (See MPEP § 2113) despite the fact that "The circulating-part holding member 7 is formed by press forming." (column 6, lines 55-56)).

**Claim 3:**

Matsumoto discloses all the limitations of claim 2 as shown above. Furthermore, Matsumoto, as shown, discloses the following limitations:

- *wherein the holding member is manufactured by drawing processing* (the claimed invention is defined by its structure, as such, the process of making the holding member is not given patentable weight. See MPEP § 2113.).

**Claim 4:**

Matsumoto discloses all the limitations of claim 1 as shown above. Furthermore, Matsumoto, as shown, discloses the following limitations:

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- *wherein the holding member covers 60 % or more of a part of the circulating member, which is exposed from the side surface of the nut (see at least Figures 8 and 20, circulating-part holding member 7).*

**Claim Rejections - 35 USC § 103**

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Ebina et al. (US-PAT-NO: US-6,089,117 A) in view of Matsumoto et al. (US-PAT-NO: US-6,092,434 A).

**Claim 7:**

Ebina, as shown, discloses the following limitations:

*A ball screw device comprising:*

- *a screw shaft comprising a spiral first screw groove on an outer periphery thereof (see at least Figure 2, screw 1 and ball rolling groove 5);*
- *a nut screw-engaged with the screw shaft (see at least Figure 2, nut 2), comprising:*
  - *a spiral second screw groove formed on an inner periphery thereof corresponding to the first screw groove (see at least Figure 2, load rolling groove 6); and*
  - *a pair of circulating holes on side surface thereof (see at least Figure 2, fitting holes 8);*
- *a plurality of rolling elements rollably mounted in a load region formed between the first and second screw grooves (see at least Figure 2, balls 11);*
- *a circulating member (see at least Figure 2, ball circulating tubular body 3) made of resin, comprising:*
  - *a rolling-element circulating path formed therein (see at least Figure 1, no load ball path 10), which introduces the rolling element rolling in the load region from one of the pair of*

*circulating holes to an outside of the nut, and also returns the rolling element to the load region via other of the pair of circulating holes; and*

- *both ends fitted to the pair of circulating holes (see at least Figure 8 and column 14, lines 26-30: "As shown in FIGS. 6 through 8, The ball circulating tubular body 3 comprises a pair of tubular pieces 15 to be fitted into a pair of fitting holes 8 formed in the nut 2 and a tubular body 16 connecting the tubular pieces 15 so as to establish communication between the tubular pieces 15."); and*
- *a metallic holding member for fixing the circulating member onto the nut (see at least Figure 9, figure 9).*
- *wherein the circulation member is substantially U-shaped tube having bending portions on both ends thereof (see at least Figure 8);*
- *wherein the holding member is manufactured by drawing processing (the claimed invention is defined by its structure, as such, the process of making the holding member is not given patentable weight. See MPEP § 2113.); and*
- *wherein the circulating member comprises legs which fit in the circulating holes of the nut at both ends thereof (see at least Figure 8 and column 14, lines 26-30: "As shown in FIGS. 6 through 8, The ball circulating tubular body 3 comprises a pair of tubular pieces 15 to be fitted into a pair of fitting holes 8 formed in the nut 2 and a tubular body 16 connecting the tubular pieces 15 so as to establish communication between the tubular pieces 15."), and*
- *wherein a path for scooping up the rolling elements and a path for returning the rolling elements are formed in the legs so as to be inclined relative to an outer periphery of the leg, respectively (see at least Figure 8, no load ball path 10).*

Ebina does not disclose the following limitations, but Matsumoto, as shown, does:

- *wherein the holding member substantially covers a main body of the circulation member including the bending portions thereof (see at least Figures 8 and 20, circulating-part holding member 7).*

As stated by Matsumoto (column 6, line 67 through column 7, line 7) "At this time, the circulating-part holding member 7 is fitted to the outer peripheral surface 11 of the ball nut 2 without a clearance, and

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abuts against the two connecting contact portions 14, each connecting the outward surface portion of each curved bent portion of the ball-circulating tube 4 and the fitted outward surface portion of the intermediate portion of the tube 4, thereby fixing the ball-circulating tube 4 to the ball nut 2."

It would have been obvious to one of ordinary skill in art at the time of the invention to substitute the holding member of Ebina with the holding member of Matsumoto as both elements serve to fix the circulating member to the nut. The simple substitution of one known fastening element for another, producing a predictable result, would have been obvious to one of ordinary skill in the art at the time of the invention.



***Conclusion***

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to **Doron D. Fields** whose telephone number is **571.270.3107**. The Examiner can normally be reached on Monday-Friday, 9:30am-5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, **BETH BOSWELL** can be reached at **571.272.6737**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://portal.uspto.gov/external/portal/pair> <<http://pair-direct.uspto.gov>>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866.217.9197** (toll-free).

Any response to this action should be mailed to:

**Commissioner of Patents and Trademarks**

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**Alexandria, VA 22313-1450**

or faxed to **571-273-8300**.

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/Doron D Fields/Examiner, Art Unit 3623  
03 September 2008

/Richard WL Ridley/  
Supervisory Patent Examiner, Art Unit 3682